

**METHOD AND APPARATUS FOR A NETWORK ELEMENT TO SUPPORT A
COMMUNICATION LINK IN A COMMUNICATION NETWORK**

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ABSTRACT OF THE DISCLOSURE

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A SONET network element or network switch includes a control layer implemented over a physical layer to automate the establishment, modification, and/or deletion of communication links within the communication network. In general, the network element may include firmware to support processing that begins by receiving a link command and determining the type of link command. When the type of link command is to establish a connection, the processing continues by determining whether the network element is a termination node of the communication link. When the network element is not a termination node of the communication link, the processing continues by determining an optimal path for the communication link via a plurality of network elements of the communication network. The processing continues by determining the type of path to the adjacent network element of the plurality of network elements. The processing continues by processing the link

command based on the type of path to the adjacent network element to establish the communication link.

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